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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,213	12/14/2001	Scott R. Smith	S13.12-0111	1208
26181	7590	12/30/2005		
FISH & RICHARDSON P.C. PO BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER MANTIS MERCADER, ELENI M	
			ART UNIT 3737	PAPER NUMBER
DATE MAILED: 12/30/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/017,213	SMITH, SCOTT R.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eleni Mantis Mercader	3737	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-18,20-24,26-45,47-60,62-69 and 71-85 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-18,20-24,26-45,47-60,62-69 and 71-85 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments with respect to claims 1-7,9-18,20-24,26-45,47-60,62-69 and 71-85 have been considered but are moot in view of the new ground(s) of rejection. The limitation "where at least one of the first or the second internal antennae is an open wire length antenna" constitutes a new ground for rejection.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7,9-18,20-24,26-45,47-60,62-69 and 71-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumoulin et al.'896 in view of Minkoff'461 (PCT), Halperin et al.'176, in view of Truwit et al.'705, all of record and McKinnon'055 (US Patent No. 5,792,055).

Dumoulin et al.'896 teach all the features of the instant invention including a tracking NMR coil for providing positional information of the surgical catheter of interest and which also delivers RF current to treat the area of interest, while the MRI system acquires image data of the area of interest which depicts on the MRI image the location of the tracking coil (see claim 1 of Dumoulin et al.'896).

Dumoulin et al.'896 does not teach the use of the tracking NMR coil which provides a first image of the patient's internal area of interest used to enhance the acquired MRI image as

acquired by the MRI system, and providing this enhanced image by combining the internal with the externally derived MRI image.

In the same field of endeavor, Minkoff'461 (PCT) teaches the use of an internally derived image of the proximate area of interest near the catheter being combinable with an externally derived MRI image in order to combine the two and provide an enhanced image (see abstract and see in page 5, lines 22-31).

It would have been obvious to one skilled in the art at the time that the invention was made to have modified Dumoulin et al.'896 and incorporated the teaching of Minkoff'461 (PCT), by using the internal tracking coil to obtain an image of the internal area of interest wherein the operation of interest occurs, such as a procedure of recanalization, and combine that image with the externally derived image in order to increase the S/N ratio of the MRI image by combining the internal and externally derived images as taught by Minkoff'461 (PCT) (see for motivation to combine page 5, lines 29-31). It is well known to skilled artisans that rf coils can perform all three functions of ablation, imaging and tracking. See Halperin et al.'176 which clearly states that the rf antenna can be used for internal imaging and ablation (see col. 4, lines 1-21) meaning that an rf antenna is capable of both imaging of internal structures and of ablation.

Dumoulin et al.'896, Minkoff'461 and Halperin et al.'176 do not explicitly teach using multiple internal antennas. In the same field of endeavor, Truwit et al.'705 teaches the use of multiple or plural antennas or coils in order to get high signal to noise ratio and spatial resolution (see col. 6, lines 25-28).

It would have been obvious to one skilled in the art at the time that the invention was made to have modified Dumoulin et al.'896, Minkoff'461 and Halperin et al.'176 and

incorporated the teaching of Truwit et al.'705 in incorporating multiple antennas in order to get a better image and therefore better observe the efficacy of treatment.

Dumoulin et al.'896, Minkoff'461, Halperin et al.'176 and Truwit et al.'705 do not teach the specific use of open wire length antenna.

In the same field of endeavor McKinnon'055 teaches the use of such an open wire length antenna in vascular procedures because of its high flexibility and high resolution image (see col. 3, line 53-col. 4, line 2).

It would have been obvious to one skilled in the art at the time that the invention was made to have modified Dumoulin et al.'896, Minkoff'461, Halperin et al.'176 and Truwit et al.'705 and incorporated the teaching of McKinnon'055 in using an open wire length antenna for at least one of the multiple antennae/coils because of its high flexibility and high resolution image (see for motivation to combine McKinnon'055 col. 3, line 53-col. 4, line 2). Please note that the reference of Truwit et al.'705 is used for the teaching that multiple antennae/coils to get a better image and not that the preferred coils used are solenoids. Also, the preferred coils do not exclude the use of other type of coils.

### *Conclusion*

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

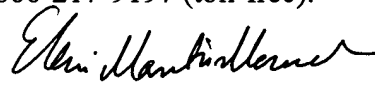
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eleni Mantis Mercader whose telephone number is (571) 272-4740. The examiner can normally be reached on Mon. - Fri., 8:00 a.m.-6:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Eleni Mantis Mercader  
Primary Examiner  
Art Unit 3737

EMM